

2005

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
17 June 2004 (17.06.2004)

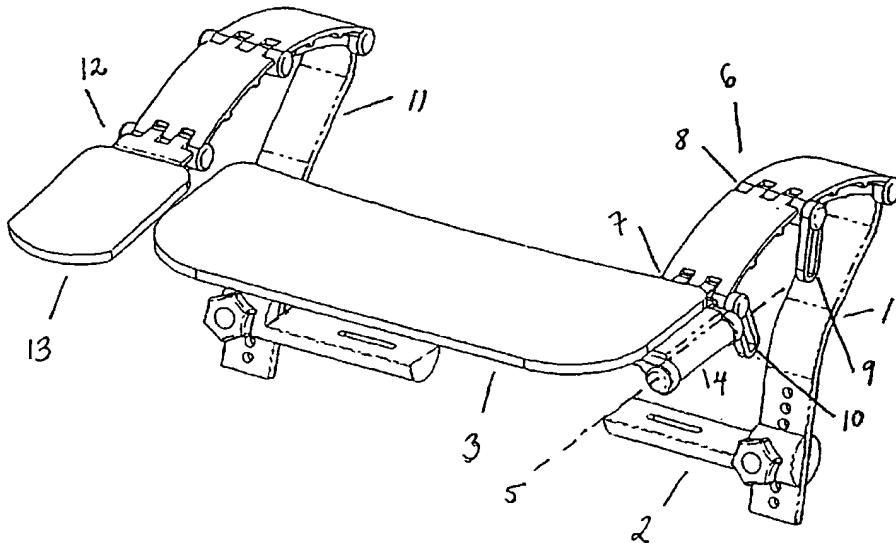
PCT

(10) International Publication Number
WO 2004/049872 A1

- (51) International Patent Classification⁷: A47C 7/70 (74) Agent: GROTH & CO. KB; P. O. Box 6107, S-102 32 Stockholm (SE).
- (21) International Application Number: PCT/SE2003/001858 (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: 1 December 2003 (01.12.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 0203562-4 2 December 2002 (02.12.2002) SE
- (71) Applicants (*for all designated States except US*): PALMELÖW, Tommy [SE/SE]; Villagatan 13, S-621 47 VISBY (SE). ÖREVIK, Staffan [SE/SE]; Ekeby, Röstäde 112, S-621 70 VISBY (SE).
- (71) Applicant and
(72) Inventor: MAY, Thomas [SE/SE]; Vallersgatan 3, S-621 43 VISBY (SE).
- (84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI utility model (BF), OAPI patent (BF), OAPI utility model (BJ), OAPI patent (BJ), OAPI utility model (CF), OAPI patent (CF), OAPI utility model (CG), OAPI patent (CG), OAPI utility model (CI), OAPI patent (CI), OAPI utility model (CM), OAPI patent (CM), OAPI utility model (GA), OAPI patent (GA), OAPI utility model (GN), OAPI patent (GN), OAPI utility model (GQ), OAPI

[Continued on next page]

(54) Title: SUPPORT DEVICE FOR A CHAIR, SAID DEVICE PROVIDING AN ERGONOMIC WORKING POSITION, BOTH STANDING UP AND SITTING DOWN, RESPECTIVELY



(57) Abstract: Device detachably attached to a chair, especially an office chair, providing an ergonomic workstation, comprising at least one pivotal arm unit (1), the one end of which is attached to the chair, and to the other end of which a work plate (3) having a manageable size for the placement of working tools is pivotally attached. The arm unit (1) and work plate (3) are selectively positionable for a user of the working tools for sitting working position in the chair, and standing working position behind the chair, respectively.

WO 2004/049872 A1



patent (GQ), OAPI utility model (GW), OAPI patent (GW), OAPI utility model (ML), OAPI patent (ML), OAPI utility model (MR), OAPI patent (MR), OAPI utility model (NE), OAPI patent (NE), OAPI utility model (SN), OAPI patent (SN), OAPI utility model (TD), OAPI patent (TD), OAPI utility model (TG), OAPI patent (TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, TG)*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations*
- *of inventorship (Rule 4.17(iv)) for US only*

Published:

- *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Support device for a chair, said device providing an ergonomic working position, both standing up and sitting down, respectively.

Technical Field

The present invention relates to a device detachably attached to a chair, especially an office chair, providing an ergonomic workstation.

5 Background to the Invention

Strain injuries, as a consequence of static work at computers, have become a bigger problem as the frequency of computers has increased, and more people sit in front of a computer the major part of their working hours and use a computer mouse and computer keyboard. Due to the monotonous working position at the computer, shoulders and arms, inter alia, are affected by strain injuries, for example so called mouse arm syndrome. This is a prior known problem and several solutions have emerged how to support the arms in order to relieve the strain on the body.

SE 464 740 describes a forearm support device for use during work at a writing desk etc., comprising means of attachment attached to a tabletop. Further, the forearm support device comprises a first pivoting arm member pivotally connected to the means of attachment, and a second pivoting arm member pivotally connected to the first pivoting arm member, the outer end of said second pivoting arm member being provided with supporting means designed for the forearm.

SE 505 551 discloses an arm support device for a chair, especially an office chair, where an attachment element is attached to the side of the seat of the chair. From the attachment element, there is a vertical column extending, pivotally connected to the attachment element. A rear horizontal supporting bar is pivotally mounted on the column, and a front horizontal supporting bar, supporting a fore-arm support, is slidingly connected to the rear horizontal supporting bar.

DE 198 32 609 describes an extension tube designed for an arm support of stand type for standing work. The arm support is freestanding on the floor by means of a foot support or is attached to a table or chair.

US 5 810 301 discloses an upper body support device at workstations.

The support device is attachable at the workstation or can be incorporated into a standalone system and comprises forearm supports adjustable to be adapted to the working position of the user. The support assembly is vertically adjustable, and can be adapted for both standing and sitting working position.

However, above-mentioned documents describe workstations presenting lack of flexibility and of variation of the working position, and insufficient support for the arms.

The Object of the Invention

5 Thus, the object of the present invention is to provide a device providing an ergonomic workstation which provides rest and support for a user during static work at a computer/workstation, or similar device provided with computer keyboard and computer mouse. The object is also to provide a device providing an ergonomic workstation which for a user is flexible, offers a wide variation of working positions, and is simple and easy to control and position.

Summary of the Invention

These objects are achieved by a device according to the present invention detachably attached to a chair, especially an officer chair, at least one pivotal arm unit being attached to the chair by one of its ends, and to its second end a work plate of manageable size for the placement of working tools is pivotally attached, the arm unit and work plate being selectively positionable for a user of the working tools for sitting working position in the chair, and standing working position behind the chair, respectively. The size of the work plate can be varied regarding the purpose of the work plate. The work plate can be design for working tools such as a computer keyboard or computer mouse, for example, or the work plate may constitute a writing pad on which a note pad can be placed. The work plate can also be provided with holder arrangements for documents. The choice of material of the work plate is made so that the work plate is made manageable, a wood material is suitable, for example, but also other suitable materials can be chosen. The work plate can also have different shapes depending on the field of application, and can be detachable from the arm unit. The device is controllable and positionable so that every user can be provided with an individually right-hand or left-hand adapted working position. Further, the device can be additionally equipped with servomotors, so it can be positioned automatically by means of said servomotors, which can be controlled by a control program located in the computer of the user. Thus, when a user is logging in to the computer, a preset position of the device for the user can automatically be set.

Thus, an ergonomic workstation is provided providing maximum flexibility and variation of the working position, e.g. sitting and standing working position, while maximum support of the arms is provided, and which in addition is simple and easy to control and position.

5 According to an advantageous embodiment of the present invention, when the arm unit and work plate are positioned for a user in a sitting working position in the chair, the arm unit constitutes a forearm support, on which the forearm of a user shall rest.

According to a further advantageous embodiment of the present invention,
10 the work plate is pivotal about an axis extending in the extension of the end of the arm unit, to which end the work plate is attached. This enables maximum of different working positions for the present user.

According to another advantageous embodiment of the present invention,
the device comprises two pivotal arm units, said arm units being detachably at-
15 tached to each side of the chair, opposite to each other.

According to yet another advantageous embodiment of the present invention, the shape of the work plate of the first arm unit is adapted for a computer keyboard and the shape of the work plate of the second arm unit is adapted for a computer mouse.

20 According to an advantageous embodiment of the present invention, when the arm unit and work plate for the computer keyboard are positioned for a user in a sitting position in the chair, the work plate adapted for a computer keyboard has a shape so that the work plate adapted for the computer keyboard is positionable directly in front of the user.

25 ***Brief Description of the Drawings***

The present invention will now, with the purpose of exemplifying, be de-
scribed in more detail by means of embodiments and by referring to the appended
drawings, wherein:

Fig. 1 shows an embodiment of the device according to the present
30 invention,

Fig. 2 shows the device of Fig. 1 attached to an office chair, and posi-
tioned for a user in a sitting working position in the chair,

Fig. 3 shows the device of Fig. 1 attached to an office chair, and positioned for a user in a sitting working position in the chair having the larger work plate turned upwards.

Fig. 4 shows the device of Fig. 1 attached to an office chair, and positioned for a user in a standing working position behind the chair.

Detailed Description of the Drawings

Fig. 1 shows an embodiment of the device according to the present invention. A first arm unit 1 has means of attachment 2 at its first end adapted to be attached under the seat of the chair. To the second end of the first arm unit 1 a first work plate 3 is pivotally attached, the size and shape of which is adapted for a computer keyboard, for example. The first work plate 3 is attached to pivoting means 4 which in turn is pivotally attached to the second end of the first arm unit 1. The attachment of the first work plate 3 to the pivoting means 4 enables the pivoting of the first work plate 3 about an axis 5 extending along the extension of the second end of the first arm unit 1. The upwardly facing surface 6 of the first arm unit 1 constitutes a forearm support for the forearm of a user. The first arm unit 1 is hinged by a first hinge 7 and a second hinge 8 providing maximum of different working positions for the user. Naturally, these hinges 7, 8 can have other forms, e.g., in form of ball joints to provide more alternatives of position. Looking means 9, 10 arranged for each hinge fix the hinges 7, 8 in different positions and by that provide various fixed positions for the first arm unit 1. The second arm unit 11 has the same form but is adapted to be attached to the opposite side of the chair in relation to the side of attachment of the first arm unit 1. To the second end 12 of the second arm unit 11 a second work plate 13 is pivotally attached, the size of which, however, is adapted for a computer mouse.

Fig. 2 shows the device 14 of Fig. 1 attached to an office chair 15 where the device 14 is positioned for a user in a sitting working position in the office chair 15 having the first work plate 3 adapted for a computer keyboard positioned in front of the upper body of a user, and the second work plate 13 adapted for a computer mouse positioned at the hand of the user.

Fig. 3 shows the device 14 of Fig. 1 arranged and positioned for a user in a sitting working position in the office chair 15, as in Fig. 2, but having the first work

plate 3 turned upwards, adapted for a user to be easily seated in the office chair 15.

Fig. 4 shows the device 14 of Fig. 1 positioned for a user in a standing working position behind the chair. The first work plate 3, and the second work plate 13 are positioned at an elevation adapted for the present user. When the user is in the standing working position, preferably, the wheels of the office chair 15 are locked to provide a stable workstation. To provide support for the forearms of the user in standing working position, the device 14 can additionally be equipped with two additional forearm supports, each of which, when the device 14 is positioned for standing working position, projects backwards from respective work plate 3, 13 at the attachment of respective work plate 3, 13 to respective arm unit, and is essentially positioned in the same plane as respective work plate 3, 13.

CLAIMS

1. A device detachably attached to a chair, especially an office chair (15), **characterized** by at least one pivotal arm unit (1), the one end of which is attached to the chair, and to the other end of which a work plate (3) having a manageable size for the placement of working tools is pivotally attached, the arm unit (1) and work plate (3) being selectively positionable for a user of the working tools for sitting working position in the chair, and standing working position behind the chair, respectively.

10

2. A device according to claim 1, **characterized** in that, when the arm unit (1) and work plate (3) are positioned for a user in a sitting working position in the chair, the arm unit (1) constitutes a forearm support, on which a forearm of the user shall rest.

15

3. A device according to claim 1 or 2, **characterized** in that the work plate (3) is pivotal about an axis (5) extending in the extension of the end of the arm unit (1), to which end the work plate (3) is attached.

20

4. A device according to any of the claims 1 to 3, **characterized** by two pivotal arm units (1, 11), said arm units (1, 11) being detachably attached to each side of the chair, opposite to each other.

25

5. A device according to claim 4, **characterized** in that the shape of the work plate (3) of the first arm unit (1) is adapted for a computer keyboard, and the shape of the work plate (13) of the second arm unit (11) is adapted for a computer mouse.

30

6. A device according to claim 5, **characterized** in that, when the arm unit (1) and work plate (3) for the computer keyboard are positioned for a user in a sitting position in the chair, the work plate (3) adapted for a computer keyboard has a shape so that the work plate (3) adapted for the computer keyboard is positionable directly in front of the user.

101537445

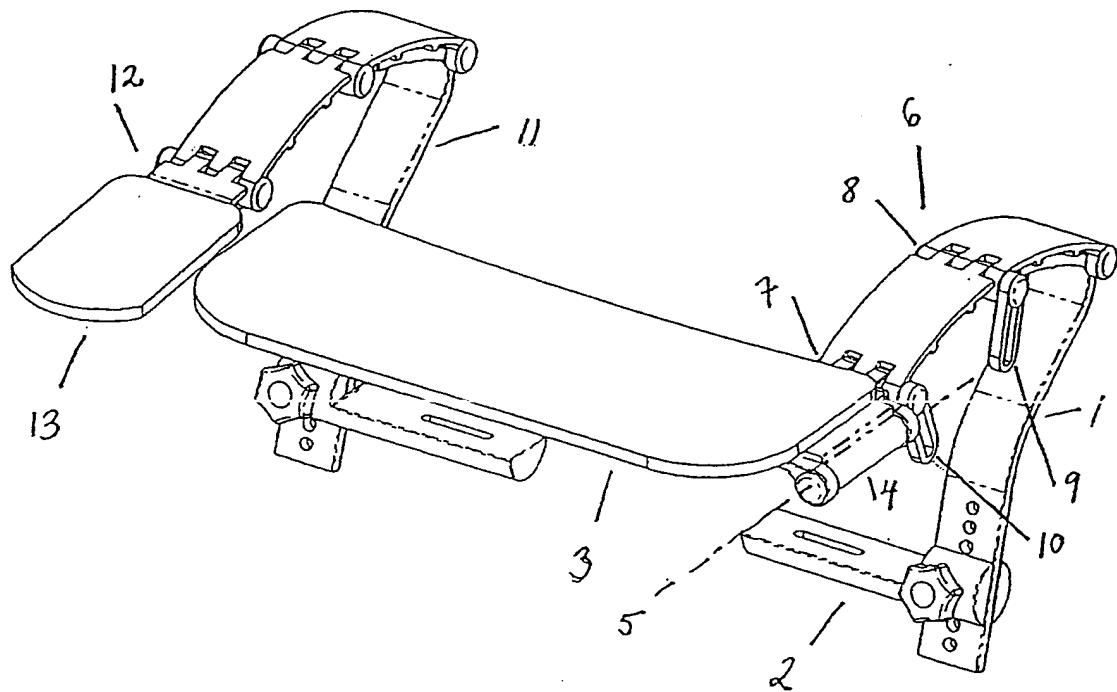


FIG. 1

101537445

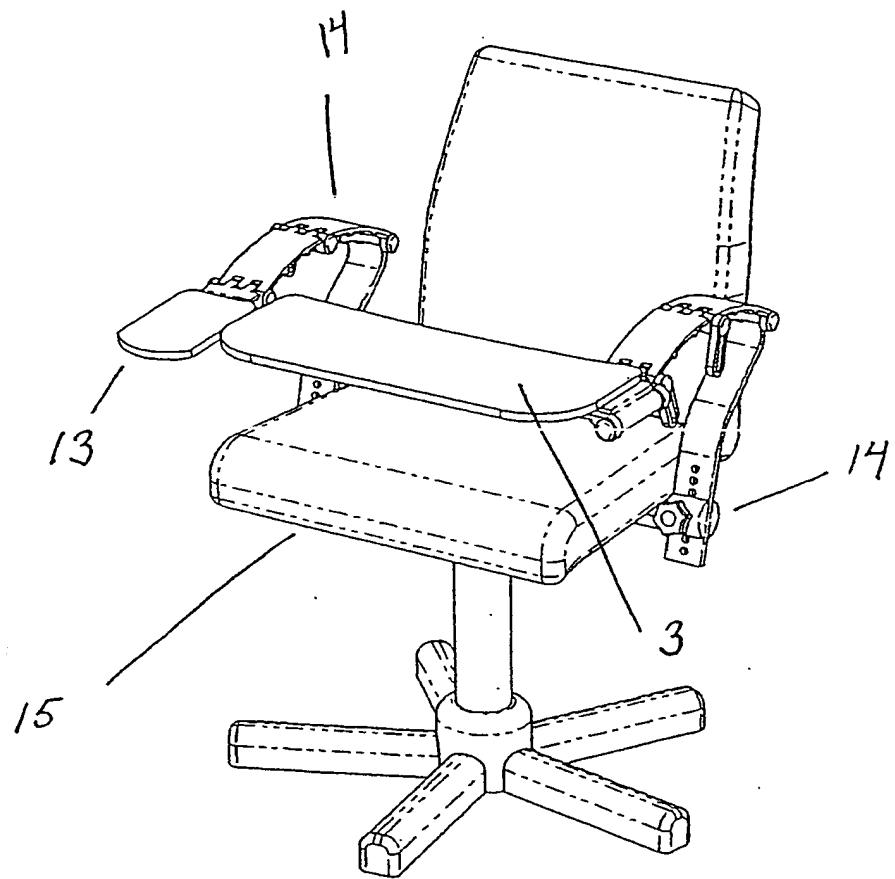


Fig. 2

10 / 537445

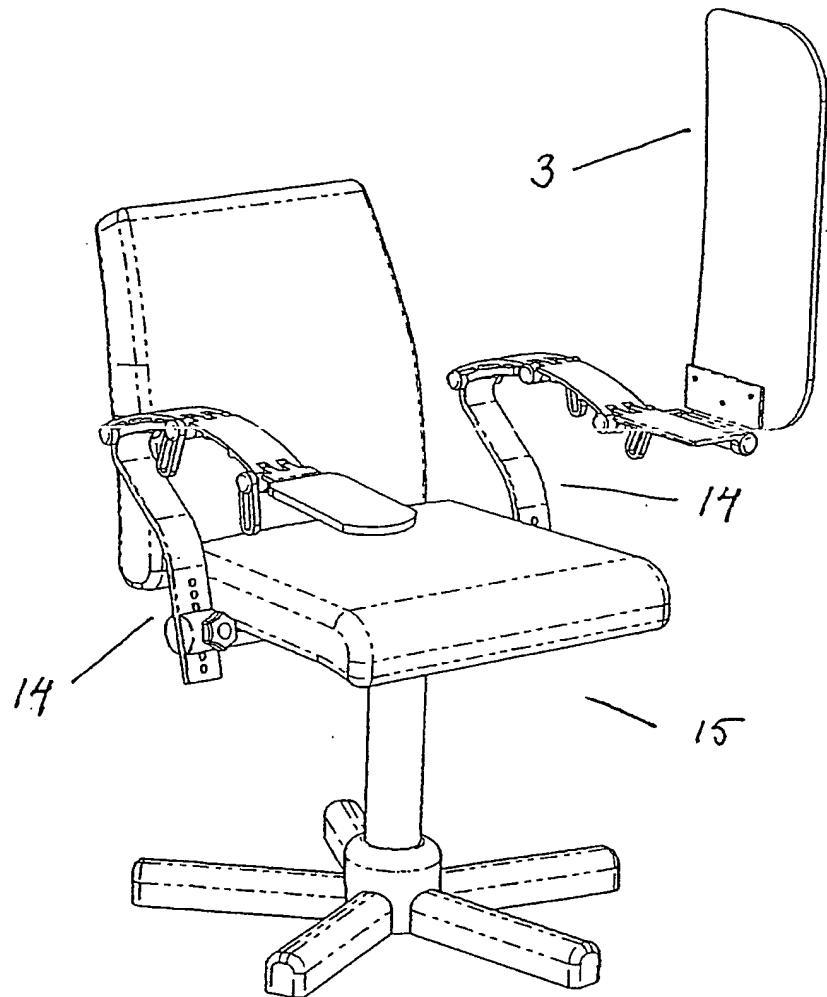


FIG. 3

101537445

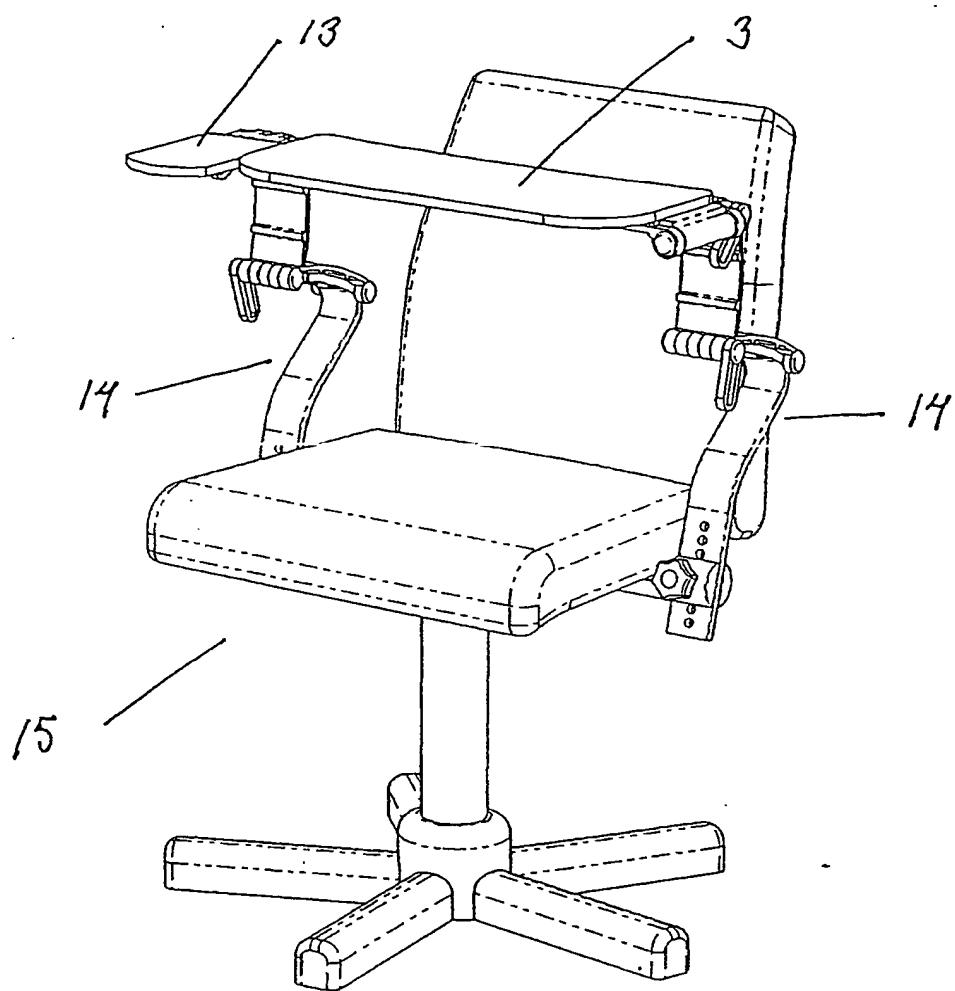


FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 2003/001858

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A47C 7/70

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A47C, G05G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6045179 A (HARRISONCHAEIL), 4 April 2000 (04.04.2000) --	
A	DE 20204865 U1 (BAHR, MICHAEL), 19 Sept 2002 (19.09.2002) --	
A	GB 820646 A (MAURICE NORMAN), 23 Sept 1959 (23.09.1959) -- -----	

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

4 February 2004

Date of mailing of the international search report

11-02-2004

Name and mailing address of the ISA/
Swedish Patent Office
Box 5055, S-102 42 STOCKHOLM
Facsimile No. +46 8 666 02 86Authorized officer

Jenny Petersson / JA A
Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT

Information on patent family members

24/12/2003

International application No.

PCT/SE 2003/001858

US 6045179 A 04/04/2000 NONE

DE 20204865 U1 19/09/2002 NONE

GB 820646 A 23/09/1959 .NONE
